

WHAT IS CLAIMED IS:

1. An electronic ballast for supplying electrical excitation to a discharge lamp, the electronic ballast comprising:

power conditioning circuitry for conditioning electrical power received from a source of electrical power, producing a conditioned power signal; and

- 5 a lamp supply circuit for receiving the conditioned power signal and producing electrical signals to operate a discharge lamp, said lamp supply circuit including a programmable processor operable to vary an operating parameter of the lamp supply circuit to enable operation of a plurality of lamp types or sizes.

2. The electronic ballast of claim 1, further comprising a programmable inductor circuit having a plurality of inductance values, wherein said programmable processor is operable to select one of said plurality of inductance values for operation of a particular lamp type or size.

3. The electronic ballast of claim 1 wherein said programmable processor is further operable to produce an oscillating processor signal for use in oscillating the supply circuit at a plurality of frequencies to operate discharge lamps of different types or sizes.

4. The electronic ballast of claim 3 wherein said programmable processor oscillates the lamp supply circuit during ignition of a discharge lamp.

5. The electronic ballast of claim 3 wherein said programmable processor oscillates the lamp supply circuit after ignition of a discharge lamp.

6. The electronic ballast of claim 1 wherein said lamp supply circuit includes:

an ignition circuit for producing an oscillating voltage signal for igniting a discharge lamp; and

- 5 a sustaining circuit for producing an oscillating current signal to sustain ignition of the discharge lamp.

7. The electronic ballast of claim 6 wherein said sustaining circuit is inductorless.

8. The electronic ballast of claim 6, further comprising:
 - a switch having a conductive state and a nonconductive state; and
 - a driver for switching the switch between its conductive and nonconductive states based on the oscillating processor signal, thereby producing the oscillating current signal.
9. The electronic ballast of claim 6, further comprising:
 - a converter for converting the oscillating processor signal to analog format, producing an analog oscillating signal; and
 - an amplifier for amplifying the analog oscillating signal, producing said oscillating current signal.
10. The electronic ballast of claim 1 wherein said power conditioning circuitry includes:
 - a filter circuit for removing noise from electrical power provided by the electrical power source, producing a filtered power signal;
 - a power factor correction circuit for adjusting the power factor of the filtered power signal to produce a corrected power signal; and
 - a power supply circuit for converting electrical power received from the filtered power signal to a power level sufficient to operate the electronic ballast.
11. The electronic ballast of claim 1, further comprising a communication port for communicating with the programmable processor from a peripheral device.
12. The electronic ballast of claim 11 wherein said peripheral device is a computer.
13. The electronic ballast of claim 11 wherein said peripheral device is a communication network.
14. The electronic ballast of claim 1, further comprising a voltage monitor for monitoring the electrical signal provided to a discharge lamp, producing a voltage monitor signal corresponding to the electrical voltage sensed by the voltage monitor.
15. The electronic ballast of claim 14 wherein said programmable processor is further operable to control the oscillating processor signal based on the voltage monitor signal.

16. The electronic ballast of claim 1, further comprising a current monitor for monitoring the electrical signal provided to a discharge lamp, producing a current monitor signal corresponding to the electrical current sensed by the current monitor.

17. The electronic ballast of claim 16 wherein said programmable processor is further operable to control the oscillating processor signal based on the current monitor signal.

18. An electronic ballast for supplying electrical excitation to a discharge lamp, the electronic ballast comprising:

power conditioning circuitry for conditioning electrical power received from a source of electrical power, producing a conditioned power signal; and

5 a lamp supply circuit for receiving the conditioned power signal and producing electrical signals to ignite and sustain ignition of the discharge lamp, said lamp supply circuit including:

a programmable processor operable to produce an oscillating processor signal for use in oscillating the supply circuit at a plurality of frequencies to operate
10 discharge lamps of different types or sizes;

an ignition circuit for receiving an oscillating processor signal and producing an oscillating voltage signal for igniting the discharge lamp; and

a sustaining circuit for receiving an oscillating processor signal and producing an oscillating current signal to sustain ignition of the discharge lamp.

19. The electronic ballast of claim 18 wherein said power conditioning circuitry includes:

a filter circuit for removing noise from electrical power provided by the electrical power source, producing a filtered power signal;

5 a power factor correction circuit for adjusting the power factor of the filtered power signal to produce a corrected power signal; and

a power supply circuit for converting electrical power received from the filtered power signal to a power level sufficient to operate the electronic ballast.

20. The electronic ballast of claim 19, further comprising a communication port for communicating with the programmable processor from a peripheral device.

21. The electronic ballast of claim 20 wherein said peripheral device is a computer.
22. The electronic ballast of claim 20 wherein said peripheral device is a digital communication network.
23. The electronic ballast of claim 18, further comprising a voltage monitor for monitoring the electrical signal provided to a discharge lamp, producing a voltage monitor signal corresponding to the electrical voltage sensed by the voltage monitor.
24. The electronic ballast of claim 23 wherein said programmable processor is further operable to control the oscillating processor signal based on the voltage monitor signal.
25. The electronic ballast of claim 18, further comprising a current monitor for monitoring the electrical signal provided to a discharge lamp, producing a current monitor signal corresponding to the electrical current sensed by the current monitor.
26. The electronic ballast of claim 25 wherein said programmable processor is further operable to control the oscillating processor signal based on the current monitor signal.
27. The electronic ballast of claim 18 wherein said sustaining circuit is inductorless.
28. An electronic ballast for supplying electrical excitation to a discharge lamp, the electronic ballast comprising:

power conditioning circuitry for conditioning electrical power received from a source of electrical power, producing a conditioned power signal; and

5 a lamp supply circuit for receiving the conditioned power signal and producing electrical signals to ignite and sustain ignition of a discharge lamp, said lamp supply circuit including:

a programmable processor operable to produce an oscillating processor signal for use in oscillating the supply circuit at a plurality of frequencies to operate
10 discharge lamps of different types or sizes; and

an inductorless sustaining circuit for receiving the oscillating processor signal and producing an oscillating current signal for operating the discharge lamp after ignition.